Constructing an Indian ethnosociology[1]

McKim Marriott

It is an anomalous fact that the social sciences used in India today have developed from thought about Western rather than Indian cultural realities. As a result, although they pretend to universal applicability, the Western sciences often do not recognise and therefore cannot deal with the questions to which many Indian institutions are answers. In the interest of dealing with Indian questions and answers, this volume explores social science ideas that can be developed from the realities known to Indian people.

Attending to what is perceived by Indians in Indian categories should at least promote a more perceptive Indian ethnography, and the papers of this volume are offered as specimens. Recognition of Indian realities should also promote more incisive analysis, inference, hypothesis formation, and positive theoretical growth—in other words, the development of Indian ethnosocial sciences.

This volume aims by the same attention to Indian realities to increase the range and power of the social sciences generally. All social sciences develop from thought about what is known to particular cultures and are thus 'cultural' or 'ethno-' social sciences in their origins.[2] All are initially parochial in scope. Since thought originating outside of Europe and America has not yet been recognised or developed as 'social science', the world has thus far had to manage with ethnosocial sciences of only one limited, Western type. By working with a culturally related, but non-European people's thought about their own realities, the authors of this volume aim to expand the world repertory of social sciences.

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    [2] The assertion that all social sciences are cultural (and therefore '-emic') amounts to denying the privileged position claimed for an imaginary '-etic' social science, which is really derived from the investigator's emics.

If their efforts help in developing at least one non-Western social science (many more are desirable), the authors may well contribute to a third purpose: assisting social scientists working in a Western, Indian, or any other tradition to become conscious of their presuppositions—their cultural biasses and blindspots. What a culture presupposes may, like a language's grammar, remain unconscious just because it seems to be universally accepted, to have no alternative. An Indian ethnosociology could offer a conscious alternative. It could offer a second lens through which all could look, a second language in which all could speak.[3]

Preoccupied with answering questions about the kinds of entities, relationships, media, and states of being that others of his common sense or limited professional culture take to be real, the social scientist of any tradition may be unaware that the traditional categories of sociological questioning themselves impose a culture upon respondents. Whether aware or not, however, the investigator who seeks ways of asking in rural India about equivalents of Western 'individuals', 'social structures', 'kinship', 'classes', 'statuses', 'rules', 'oppositions', 'solidarities', 'hierarchies', 'authority', 'values', 'ideology', 'religion', 'purity', etc., risks imposing an alien ontology and an alien epistemology on those who attempt to answer.

Such terms of questioning are precipitates of Western social, intellectual, and particularly academic history.[4] Many of them also remain as commonplaces of Western popular thought. But they rarely fit Indian definitions of reality. For example, Marx's distinction between a 'material' base and an 'ideological' superstructure, like Lévi-Strauss' distinction between 'nature' and 'culture', is commonsensical in the West, but is overridden by Hindu notions that natural matter, actions, words and thoughts are all substances and all imbued with relational properties: by Hindu definitions there are no insignificant material facts, no nonmaterial ideas (e.g., Ramanujan 1967: 105–08). Similarly, Durkheim's (1915) definition of 'religion' as a separation of 'profane' from 'sacred' things, like the

[3] In the interest of heightening awareness of the analytical terms used, English words which closely gloss Indian concepts are given in double quote marks, while quoted Western analytic terms are given with the usual single quote marks.

[4] The Western ethnodisciplines themselves reflect the historic circumstances of their origins. The Reformation split 'spirit' from 'matter', 'value' from 'fact', and the 'humanities' (*Geisteswissenschaften*) from the 'natural sciences' (*Naturwissenschaften*); the Enlightenment further split 'mind' from 'body', 'philosophy' from 'biology', 'subjective' from 'objective', and 'idealism' from 'materialism' (Uberoi 1978); liberal capitalism split 'markets' from 'government', and 'economics' from 'political science'; the industrial and political revolutions split 'urban' from 'rural', 'individual' from 'society', and 'psychology' from 'sociology'; European expansion split 'anthropology' from 'sociology'. The separateness of the domains of the present Western ethnodisciplines from each other is itself one of their most striking and troubling cultural characteristics; there is no reason to suppose that a society which has not shared the Western historic experiences would wish so to divide them.

common Western definition of 'purity' as 'spirit' from which 'flesh' has been separated, has little useful applicability to the *dharma* of Hindus, which is principally concerned with the ways in which all such categories are connected (Mines 1989; Waghorne and Cutler 1985). Weber's (1968: 926–40) social differentiations by 'class' or economic position and by 'status' or style of life are obviously helpful concepts in the West, but cannot separately or together define the transactional ways in which Hindu institutions order castes or persons (Marriott 1968, 1976). The 'solidarity' that Durkheim (1933) presumes as a normal, healthy social state in the Western world may be extraordinary or pathological for the inhabitants of a Hindu world which "moves" (*jagat*) or "flows together" (*saṃsāra*); for them, 'fluidarity' may be preferable. Justifying behaviour by citing precedents and rules—the issue of 'legitimation' on which Weber focuses his famous typology of traditional and bureaucratic 'authority'—is irrelevant to Indian concerns with continual flux and with the *dhārmik* consequences of material and power relations, such as feeding and violence (e.g., Chakravarti 1975: 10–20; Heginbotham 1975). The 'means-end' and 'actor-action' dichotomies with which Parsons and Shils (1952) accurately summarise many of the above Western theoretical distinctions and concerns may seem like universal and unexceptionable notions, yet they are overridden by Hindu notions of *karma*, according to which ends inhere in means and actors are products of actions (Potter 1980).

Are Indian perceptions of a variable and interactive world then of interest largely as negations of all Western distinctions, and of value only as refutations of the Western ethnosocial sciences' claim to analytic universality? Do Indian institutions presume a single, undifferentiated cosmos—one which is impregnable to analysis, and therefore unlikely to produce an analytic system? The authors of this volume think otherwise; they find that Indian joinings of what the West would split often point to alternative, especially transactional concepts of integrative value. Their papers also tell of Indian perceptions and kinds of analytic relations (other than dichotomous distinctions) that are ignored by Western social science conventions (including those of structuralism) to the detriment of all.

Thus, a positive impetus for this volume comes from the hope that more fully developed Indian ethnosocial sciences may take their place beside the Western ethnosocial sciences. Together with the ethnosciences of other lands they may provide better bases for the future claim of an expanded, multicultural set of sciences to have that '*universal* significance and value' which Weber in 1904 (1952: 13) prematurely reserved for rational social thought in the West.

Developing indigenous sciences

How can Indian ethnosocial sciences develop today? Potentialities have

long existed, both in learned thought and in the perceptual and cognitive categories of everyday Indian life and discourse. These potentialities have been neglected for some centuries as other intellectual technologies were imported from the West. Increasingly since Independence, however, some researchers in every Western discipline have noted that their imported concepts do not fit Indian perceptions and meanings (Mukerji 1986). Many are now seeking to incorporate indigenous definitions of the underlying realities in their discovery procedures (Szanton 1976).

The imperial style of Western ethnosocial science excludes competing definitions of reality from its published reports. A more cosmopolitan, self-critical Western style of 'comparative sociology' allows the reporting of non-Western phenomena (such as *varṇa* and *āśrama*) which can be described by permutations of authoritative Western notions (e.g., Dumont 1970); but its results tend to include a patchwork of negations and unresolved paradoxes. The more humanistic style of ethnography called 'cultural' takes care to report local social concepts that have no ready translations into Western natural languages or existing social science jargons; but its results tend to be richly idiographic, rather than adding to any systematic general model of the culture studied. A 'cultural interpretation' or 'a cultural account' goes further toward systematising: it takes indigenous words and concepts around Dilthey's 'hermeneutic circle' of meaning, building evocatively from smaller local details to more general concepts, and then using the general to inform and enlighten the particulars (Geertz 1983).

Constructing a theoretical social science for a culture requires somewhat more than providing a meaningful cultural account: it requires building from the culture's natural categories a general system of concepts that can be formally defined in relation to each other; it requires developing words and measures that can be used rigorously for description, analysis and explanation within that culture; and it especially requires developing deductive strategies that can generate hypotheses for empirical tests in order that the science may criticise itself and grow. It requires doing all this in terms that will be analytically powerful enough to define all the major parameters of living in that culture without violating the culture's ontology, its presuppositions, or its epistemology.

Talcott Parsons and his many collaborators exemplify some success toward meeting these requirements for the West in their syntheses of the Western social sciences as a 'system of action' (Parsons and Shils 1952). They build on the shared categories of major European and American theorists of the late 19th and early 20th centuries (psychologists, socio-logists, economists, anthropologists) who use categories like 'personality', 'society', 'biology', 'culture', etc. Behind these categories, they infer metacategories, such as the 'actor-action' and 'means-end' dichotomies. They take these dichotomies as the axioms—the smallest possible set of

basic ideas—from whose combinations and replications the major institu-tional forms and dilemmas of modern Western life can be deduced. Among common dilemmas they deduce and define are five 'pattern variables'—'affectivity' versus 'affective neutrality', 'self-orientation' versus 'collectivity orientation', 'particularism' versus 'universalism', 'qualities' versus 'performance', and 'functional diffuseness' versus 'functional specificity'. These variables are postulated as potentially recurring in all institutions, in all interactions among persons.

The Parsonian synthesis has been influential and productive in research on Western society, where its general theoretical system has been used to generate hypotheses for studies of kinship systems, social stratification, occupational role structures, politics, etc. As with other Western theories, its resulting hypotheses, rather than its method for *developing* a general theoretical system, have been applied also to non-Western societies. Investigators working in this applied manner assume the universality of the Western axioms; they would research the Western cultural categories among people of different cultures (e.g., Damle [1965] for India). A common result of such applications has been to fault the non-West for failing to recognise the Western categories or for failing to resolve the Western dilemmas in the 'modern' manner (Kapp 1963; Parsons 1966, 1971; Shils 1961). Rarer but theoretically more constructive results have included the discovery that non-Western societies may presuppose other categories and have other questions to deal with—questions demanding answers in terms of alternative percepts and concepts which may not now exist in the Western social sciences (e.g., for Japan, Lebra [1976]; for India, McClelland [1975: 123–68]).

None appears yet to have attempted what is proposed here—following the Parsons and Shils method all the way to constructing an alternative general theoretical system for the social sciences of a non-Western civilisa-tion, using that civilisation's own categories. Some anthropologists have developed theoretical accounts from folk notions of Western institutions (e.g., Schneider [1968] on American kinship). Many have formulated parts of general theoretical systems from the categories presented by the insti-tutions of smaller, more homogeneous non-Western communities, where the materials for synthesis have been relatively few and largely ethnographic (e.g., Fernandez 1982; Geertz 1966; Leaf 1972; Meggitt 1972; Rosaldo 1980). Sociologists who have set out to systematise the categories of Indian social theory have limited themselves to summarising existing *dharmaśāstra* (e.g., Motwani 1934), or to selecting just those features of it that seem to have Western analogues or contraries (e.g., Saksena 1965: 4). The task envisaged here for social scientists is a broader one—to synthesise a theoretical general system accommodating the realities known to Hindus, using both India's multiple textual sources and the evidence of its highly varied social life.

This task should not be begun without taking cognisance of Piatigorsky's (1985) admonition (addressed to researchers on Indian religion) that an investigation needs to work out metaconceptual categories and descriptive terms which are (*i*) congruent with the indigenously cognised features of the phenomena under study, and which also (*ii*) facilitate comparison with other phenomena (here the Western social sciences) having different features. Since vedic Hindus see their society as based directly upon understandings of nature (Dumont 1961: 36–37), the metaconcepts and terms employed here are largely drawn from the natural sciences. The perfect natural science for Hindu India has long been linguistics, this paper and the papers by Ramanujan and Raheja in this volume all illustrate the usefulness of some concepts drawn from that science. But the ideal natural science for the West has long been geometry, and the mathematical concepts also employed in this essay as translations, while partly shared between India and the West, no doubt involve some shifting of Indian meanings in a Western direction. The present results are thus inevitably compromises—equitable ones, it is hoped.

Materials for Hindu ethnosocial sciences

Comprehensive abstract categorisations suggestive of a general theoretical system are plentiful in Hindu thought; they are in fact so many and so variously labelled as to raise doubts about the possibility of their successful synthesis into one scheme. There are widely known classical lists of three "strands" (*gunas*), three "humours" (*dosas*), three + one "human aims" (*purusārthas*), four "classes" (*varnas*), four "stages" (*āśramas*), five "elements" (*bhūtas*), five "senses" (*indriyas*), five "sheaths" (*kosas*), six "savours" (*rasas*), eight + one "sentiments" (*rasas*), eight + one "feelings" (*bhāvas*), and so on. Lists bearing such titles respectively suggest specialised metaphysical, biological, moral, economic, developmental, physical, psychological, and aesthetic subject matters whose historical and analytic differences in the modern West would locate them in widely separated academic departments and exclude any expectations of a common conceptual framework. Yet all these lists and more have been maintained simultaneously over some centuries by large numbers of learned but unspecialised Indians. If Pugh (1984: 88–95), Raheja (1976: 45–47) and Trawick (1974) are right, these lists describe what are felt to be concentric domains: they are understood as differently labelled, but approximately congruent overlays on a common underlying set of processes whose complexity is less than its many surface appearances would suggest.

The multiple layering of conceptualisations is not less in daily life. Foods are regionally varied, yet the modes of classification in different regions seem mutually consistent: they imply similar variables and the same sort of layered complexity that appears in the above-mentioned, more abstract

lists (Ferro-Luzzi 1977, 1978; Khare 1976; Nichter 1986; Rizvi 1986). The dozens of modes of healing (dietary, medicinal, religious, magical, astrological) applied to one ailment, through which suppositions much like those of the food classification can again be read, are sometimes called 'pluralistic' by observers applying the Western distinctions (Beals 1976); yet an Indian patient may try all modes, feeling them to involve mutually implicated levels of reality—such are the field and clinical reports of many anthropologists (Amarasingham 1980; Egnor 1983; Pugh 1984; Weiss et al. 1986).

The implicit congruences and lived-in mutualities among the many layers—"sheaths" (*kośa*s), "bodies" (*śarīra*s), or on the larger scale, "spheres" (*loka*s)—of Hindu reality are such that no learned text nor ethnographer's informant seems to have felt the need to either deny any of them or provide a definitive ordering or articulation of them all. Different lists or layers are often compared, usually only two at a time, and then variously, according to the purpose at hand (S.B. Daniel 1983; Ramanujan 1989; Trawick 1988a). An explicit analysis of the common properties, if any, of these layers is thus an urgent task, preliminary to constructing a general theoretical system for the Indian social sciences.

The general nature of the compatibilities and partial congruences among the layers, whether of learned or popular formulation, should be evident from any group of lists like the above, but may be easier to see among the shorter ones. Four of these—classical and still widely repeated lists of "elements" (*bhūta*s), "humours" (*doṣa*s), "strands" (*guṇa*s), and "human aims" (*puruṣārtha*s)—are taken together below as possible bases for a general theoretical system. Each list is given in the order in which it is conventionally recited.

Table 1
Some Classical Lists of Categories

Elements (a)	Humours (b)	Strands (c)	Human Aims (d)
1. ether	1. wind	1. goodness	1 coherence-incoherence
2. air	2. bile	2. passion	2. advantage-disadvantage
3. fire	3. phlegm	3. darkness	3. attachment-nonattachment
4. water			+1. release
5. earth			

The contents of these lists at first appear heterogeneous, yet certain resemblances among them are also striking. That physical phenomena like "fire" and "darkness" appear in them as well as do human moral qualities like "attachment" and "goodness" is itself one striking fact: it suggests that such categories may be seen as somehow of one genre. The implication that moral and physical are mutually translatable replicates the *sāṃkhya*

postulate that the world and everything in it comes into being through a merger of "pure consciousness" (*puruṣa*) and "materiality" (*prakṛti*) (Larson 1987: 23, 43). It recalls the observation by Potter (n.d.) that in Sanskrit *karma* is not just a 'doing', but also a 'making' of something substantial, and the observation by Inden (1976: 21) that "substance" (*dhātu*) and "code" (*dharma*) are of one etymology (*dhṛ*) and need not be dichotomised in the world of constituted things. Inden's observation is documented in his account of medieval Bengali social theories and social histories. It is illustrated in other analyses and ethnographic reports connecting substantive qualities with actions, such as those by Babb (1970, 1981, 1983); E.V. Daniel (1984); Davis (1983); Inden and Nicholas (1977); Marriott (1976); and Marriott and Inden (1974).[5] If physical, biological and social things do have common conceptual denominators, those denominators must be of rather abstract, metaconceptual kinds, like 'relationships' or 'processes'.

That none of these lists contains less than three items is a second striking commonality, contrasting especially with the insistent dualising of the Western typologies: three appears to be the irreducible number of properties or components with which Hindus will comfortably think about human affairs. Thinking about constituted things in dualities is often condemned. At least three terms are always present, always combined.[6]

Leaving aside the aim of "release", which is an all-or-nothing event, the incidence of each other item is said to be variable. This is a third striking common fact. Each element and humour is said to be more or less strongly present in every food or bodily tissue, each strand more or less predominant in every action, each human aim more or less prominent in any person's motivation. Learned texts display few type-entities illustrating just one item taken in isolation. Thus binary, all-or-nothing measures of an item's total presence or absence will rarely apply; analog or proportional measures

[5] Against this mutual translatability of substance and action or code, McGilvray (1982a: 90–94) objects that the Mukkuvar-dominated order of castes in Batticaloa, Sri Lanka, is explained by informants as resulting from a historical imposition of rules, and not from transactions in any medium that he would recognise as a 'substance'. If commands or statements of rules along with other words, gestures and signs are admitted (as previously proposed) to the analytic category 'substance', then McGilvray's objection would seem to dissolve.

His data, like the reports in this volume by Dirks and Raheja, do however raise important questions about the political circumstances in which different media are foregrounded and regarded as definitive of social relations: actional media may be most prominent among maximal transactors, such as Gujars, Kallars, Mukkuvars and Buddhists, while substantial media are more prominent in defining relations among minimal transactors, such as many Jains and Vaiṣṇavas; translatability may be most typical of transactors of middle type, such as Brahmans and most others. Until this possible range of variation can be more systematically investigated, formulations of the middle range continue to seem worth stating.

[6] It appears to be Western dualistic structuralism, rather than indigenous thinking, that leads to reconceiving Hindu triads as dichotomies mediated by a third term.

will generally be needed to express their relative strengths, for all these items are variables. Furthermore, the relative strengths of the variables in each list are not indicated by their places in the recitational or in any other fixed orders: examinations of their uses in their respective contexts show that each may vary independently of the other items on its list.[7]

Three-dimensional graphing

Mathematical conventions of graphing would not leave any triad of independent variables in a one-dimensional column, as each appears in Table 1; they would instead depict each variable as a numbered line turned at right angles where it intersects the other two, thus creating a three-dimensional property-space. Hindu conventions might prefer to draw three such variables as the petals of a flowering lotus, emerging from a centre at various angles in open space, and such a representation might in fact serve quite well. But a rectangular cube with the familiar properties of breadth, height and depth can make three-dimensional relations easier to specify and compare (e.g., Mitchell 1980), at least for scholars used to living in and with such structures. Cubes are therefore offered here provisionally as geometric metaphors and mnemonics for Indian spaces within which everything must be rated along at least three different dimensions. Of course, a cubic graph's right angles should be altered by evidence that the variables are not wholly independent (as exemplified in Hiebert's [1971: 66–67] graphing of relations between personal and caste rank); and the cube's sides, arbitrarily made of equal length, should be altered by evidence that the variables' scales are not commensurate.

Each column of Table 1 (corresponding to columns [a] through [d] of Table 2) has a corresponding cube in Figure 1 on which the numbered variables (and their contraries, if any) are written. Thus, from Table 2, column (d), "advantage" (*artha*) is shown as opposite to "disadvantage" (*anartha*) and so on, in the "human aims" cube of Figure 1. In the other cubes, variables for whose contrary no one Sanskrit word is commonly used are shown opposite to unlabelled sides; the named variable is meant to be present there too, although less so.

Since the cubes are not intended to imply static substance or impenetrability, they are drawn as transparent. Indeed, the variables being graphed by the cubes are said to be anything but static; elements and humours are all

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[7] At times, the three strands are treated more simply as high, middle and low degrees along a single scale (e.g., in Manu 12.30–33, 39–51). But elsewhere and more generally (e.g., Manu 12.24–29; Bhagavad Gītā 14.5–17, 17.4–22, 18.18–40) the strands' independent variability is made evident. In some Tamil thinking (reported by Moreno and Marriott 1989), a single "hot-cold" scale seems to do the work of the three classical humours. But popular usages like those reported by S.B. Daniel (1983: 53–54) and by Davis (1983: 49, 51) continue to employ at least three variables.
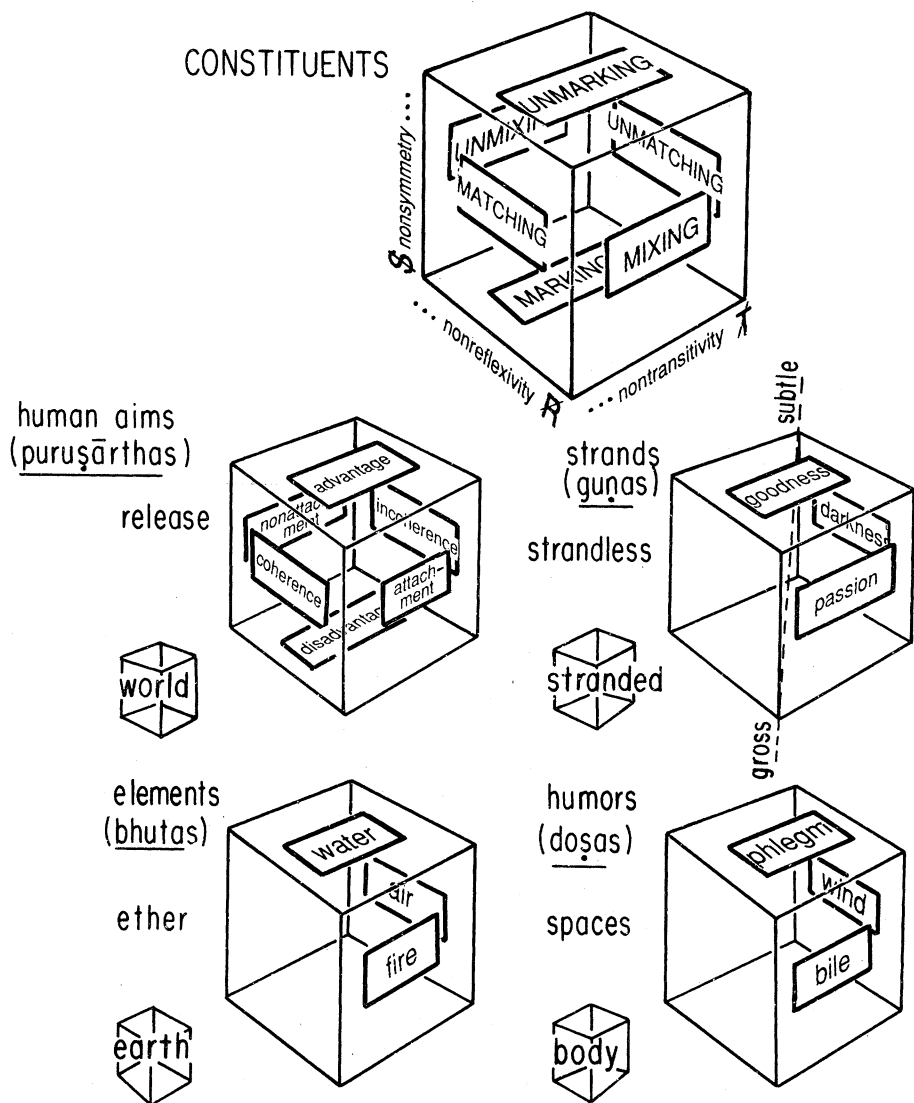
Fig.1 Derivation of the Hindu Constituent Cube

described as motile substances, while strands and aims are transient relations or processes. All cubes are more or less open to movements between their internal and external spaces, and none is intended to provide an exhaustive accounting of the sphere that it depicts.

Three-dimensional graphing opens the possibility that differing points of view may explain the differing conventional orders for listing the faces of what may still be a single underlying shape. Thus, when "ether" or "sky" (*ākāśa*) as the most inclusive element is named first while "earth" (*pṛthvī*) as the most included is named last, the viewing and starting point seems to be well beyond the earth (outside the cube), looking earthward (inward); this ordering also asserts a process of devolution (explicit in *sāṃkhya* doctrine) from relatively imperceptible or "subtle" (*sūkṣma*) to relatively perceptible or "gross" (*sthūla*) substance (Larson 1987: 50–52). The humours of Hindu biology are conventionally listed starting from the lower backside of Figure 1 "elements" cube with "wind" (*vāyu*) first and with "phlegm" (*kapha*) last, possibly because some physicians think wind is the most troublesome humour and phlegm the least (Caraka 1983 *Sū.* 20.10). Strands are listed in the Bhagavad Gītā, perhaps as they are seen by Lord Kṛṣṇa from the heavens directly above, with "goodness" (*sattva*) first and "darkness" (*tamas*) last. The list of three worldly "human aims" in *dharmaśāstra* usually begins with "coherence" (*dharma*) and ends with "attachment" (*kāma*); this series is read from the upper front of the cube, where the Brahman authors of such books reside, to the lower rear, where their social opposites do. A cube's six sides have no inherent taxonomy, nor do they decree any one, fixed 'value hierarchy', and this fact permits a variety of equally valid but different ordinal readings.

The six sides of a cube can help to visualise the 'revolving hierarchy' that Malamoud (1982) sees as typical in learned debates on "human aims". As the cube is turned by different debaters, different faces come into the foreground, where the items written on them are given broader definitions, while items written on other faces are backgrounded and given narrower definitions. The foregrounding capacity of the cube also facilitates understanding of any relationship among persons which has 'shifting' aspects, like the analytically distinct 'central', 'mutual', and 'hierarchical' aspects of inter-caste relations which Raheja (1989) finds in Pahansu village. Even the 'central conundrum of Indian social ideology', which Trautmann (1981: 285–88) finds in differently ordered transactions between priest and king, may cease to confound when a three-dimensional semantic space is presupposed, for such a space allows different, equally true orderings of the same two persons. Three-dimensional representation further helps to clarify the elaborately 'faceted' or aspectual reasoning of Hindu biology and astrology; these sciences both deal with relationships whose angles shift through several planes, rather than with fixed, linear oppositions (Kemper 1977; Zimmermann 1987: 116–24, 143–48). Three dimensions offer

resolutions to many other problems of diversity-within-unity, such as the problem of henotheism, by which, without a sense of contradiction, different deities are exalted at different times. Three-dimensional graphing is obviously congenial also to sculptural representations and to the plural faces and other attributes of one god that appear in Hindu iconography. It accommodates the simultaneous existence of six orthodox "views" (darśanas) within Hindu philosophy, and can be expanded, if necessary, to a manifold of many more dimensions (Thurston and Weeks 1984).

Merging the triads

If the four differently labelled cubes drawn in Figure 1 are understood as overlays of a single underlying structure (a simplifying assumption that may be essential for communication and social functioning),[8] then the general meanings of that structure, if any, might be discovered by merging the meanings of the four overlays. Merging requires first orienting the four cubes so that the faces which are most alike are aligned. It also requires construing each item in its broadest significance.[9]

The mutual orientations of the cubes shown in Figure 1 and the alignments of items in the rows of Table 2 are not supplied by the usual orders of the items' recitation. For example, arranging the four cubes so that all of the items numbered '1' face the same way or occupy the same row would group together "ether", "wind", and "goodness"—a set of items that no Indian usage seems to endow with a common meaning.

The more generally felt resemblances can, however, be determined through many other textual and ethnographic evidences. The homology or metonymy shown in columns (a) and (b) between elemental "fire" and humoral "bile", elemental "water" and humoral "phlegm", and elemental "air" and humoral "wind", is explicit in āyurveda (e.g., Caraka 1983 Sū. 12.11–12). The correspondence between these humours and the respective strands "darkness", "passion", and "goodness" (column [c]) is also explicit in those sections of āyurveda which deal with psychological health (Caraka 1983 Sū. 1.57, 1985 Śā. 4.34–36). Similar world qualities are assumed by the Hindu set of four "human aims" or concerns (puruṣārthas), which work sometimes with those qualities, sometimes against them. The aims are shown in column (d) with their opposites in additional rows of the same column. These are sought in varying combinations by all living beings, but by different persons at different times. Thus, seeking and maintaining "attachment" (kāma) may be desirable for many, especially in earlier phases of life, yet developing nonattachment may be desirable for some,

[8] Ambiguous exegesis may be equally essential to communication and social functioning in a system that is assumed to have a single structure (Trawick 1988a).

[9] Merging the four cubes in order to find possible shared meanings among them is not intended to eliminate consideration of their other, more distinctive meanings.

and especially in later phases of life; seeking "advantage" (*artha*) may be preferable when one has the means to obtain it, but submitting to disadvantage may be preferable when one does not; seeking "coherence" (*dharma*) may be suitable among good and stable circumstances, but cultivating incoherence may be more suitable among bad or changing times. Divergences of orientations, motivations and behaviours among the above three pairs of aims may be judged minor in comparison with the divergence of the '+ 1' aim—obtaining "freedom" or "release" (*mokṣa*) from the world of seeking. Release is not for everyone, nor is it for anyone at all times. Thus, again there can and need be no one 'hierarchy' of these 'values': time in its many Indian senses is intrinsic to choices among them.

Human aims are extensively linked with the triad of strands in popular texts of *dharmaśāstra*, as shown in the third and fourth columns of Table 2.[10] Thus, the Bhagavad Gītā speaks of the "attachment" aim (*kāma*) as a direct expression of the "passion" strand (*rajas*) (Bhagavad Gītā 17.5, 18.34). It speaks of the strand called "darkness" (*tamas*) as promoting ignorance (18.22) and as reversing judgments of right and wrong (18.32), etc., all of which are tantamount to "incoherence" (*adharma*) and opposite to the goal of "coherence" (*dharma*). These pairings implicitly leave the third strand, "goodness" (*sattva*), to be linked with the remaining aim, "advantage" (*artha*). Both goodness and advantage help one to be "strong" (17.8), to move "upward" (14.18) and to achieve the "highest" (14.14). That achievement of advantage of any kind, especially material or political, is a sign of virtue is also strongly attested in Hindu ethnography, for example, by Chakravarti (1975: 49, 53–54) and Wadley (1975: 183). (Also see Madan 1987: 121.)

Elements and humours are also linked directly with human aims by many usages, without recourse to the scheme of strands. Attachment is expressed and described as accompanied by a "hot" bodily surface, nonattachment by a cool one (the "heat" having gone inward as *tapas*), thus implicating fire. Persons of "bilious type" (*pitta prakṛti*) are aggressive, lecherous, greedy—all ways of being externally attached (Caraka 1985 *Sa.* 4.38). Air is the

[10] Manu (at 12.38) differs from these alignments and seems to be unique among the classical authors of *dharmaśāstra* in linking (*i*) "coherence" (*dharma*) with "goodness" (*sattva*), (*ii*) "advantage" (*artha*) with "passion" (*rajas*), and (*iii*) "attachment" (*kāma*) with "darkness" (*tamas*). Manu's linkages would result from simply placing the lists of aims and strands side by side, each in its conventional order, and reciting them together. These pedantic linkages may also express (*i*) a professional *dharmaśāstrī*'s exaltation of *dharma* as the most inclusive aim, (*ii*) an ascetic's devaluation of other upward striving by construing it narrowly as the pursuit of wealth, and (*iii*) a vedic teacher's sense that the warm attachments which flourish in darkness most threaten the chastity demanded of students, and deserve last listing. Manu's alignments in this verse are no doubt congenial to some others who are situated as he is, but they conflict with more widespread understandings. They have been influential (for example on Motwani 1934), but would confound development of a more generalisable and realistic sociology. ·

Table 2
Derivation of Postulates for a Processual Hindu Social Science

Hindu Analytic Sets				Mathematical Analogues		FIVE POSTULATED PROCESSES
Elements (mahā-bhūtas)	Humours (doṣas)	Strands, Qualities (guṇas)	Human Aims, Concerns (puruṣārthas)	Fundamental Relational Properties	Set Theory Operations	(with further definitions)
(a)	(b)	(c)	(d)	(e)	(f)	(g)
Three Independent Variables						
3. Fire (agni)	2. Bile (pitta)	2. Passion (rajas)	3. Attachment (kāma) . . . . . . nonattachment/reflexivity (niṣkāma)	1. Nonreflexivity	Intersection	MIXING (intersecting, opening, expanding) . . . . . . unmixing (closing, condensing)
4. Water (āpaḥ)	3. Phlegm (kapha)	1. Goodness (sattva)	2. Advantage (artha) . . . . disadvantage (anartha)	2. Nonsymmetry	Inclusion	UNMARKING self (out-ranking, pervading other neutralising self) . . . . . . marking self (being out-ranked, pervaded)
2. Air (vāyu)	1. Wind (vāta)	3. Darkness (tamas)	. . . incoherence (adharma) 1. Coherence/transitivity (dharma)	3. Nontransitivity	Disjunction, Complementation /Union	UNMATCHING (reversing, negating, separating) . . . . . . matching (continuing, affirming, uniting)

Dependent Variable

5. Earth (prthvī)	[gross body (sthūla śarīra)]	[depends on: rajas more sattva less tamas more]	[birth, living (janma)]	[example]	Set	**GROSSENING** (synthesising material-ising, localising) . . .
1. Ether, sky (ākāśa)	[subtle body (sūkṣma śarīra)]	[depends on: rajas less sattva more tamas more]	[dying (mṛtyu)]	[definition]	Universal set	. . . subtilising (analy-sing, abstracting, uni-versalising)
Constant						
0. none (brāhman, puruṣa)	[soul (ātman)]	no strand (nirguṇa)	4. Release (mokṣa)	none	Empty set	**CONSCIOUSNESS** (non-relationality)

medium of spirit possession, a kind of "play"-filled communication that deals with incoherent states (e.g., Gold 1988: 165, 182). Humoral "wind" is characterised by unrestrainable motion (Caraka 1983: *Sū.* 12.8; Manu 12.120), as are the strand of darkness (Das 1985: 187) and the negative aim of *adharma* (Selwyn 1982). Water falls from above—from places of advantage and influence—while phlegm as "unctuousness" (*sneha*) is another way of referring to the love that descends from caring superiors, such as gods and parents (Inden and Nicholas 1977: 87).

Figure 1 (in its top cube) and Table 2 (in its final column) summarise the above linkages and give each metonymic set a new, generalised name intended to indicate some shared meanings and uses of the Sanskrit-named categories that it summarises. 'Unmarking' appears on the top side of the cube and in the same row with "advantage" and with other superior items like "goodness", "phlegm" and "water"; it contrasts with 'marking', which falls in the place of "disadvantage" below it. 'Mixing' appears with "attachment" on the "fire", "bile" and "passion" (cube right) side and row; it contrasts with 'unmixing' on the left. 'Unmatching' appears with "incoherence" on the "dark", "airy", and "windy" backside and row, contrasting with 'matching', which joins (bright, anaerobic, calm) "coherence" on the front.

Each row of items, each set of similarly oriented cubic sides is incorporated in one of the general processual constituents that is postulated—mixing, unmarking and unmatching. These incorporations are possible because of mutual homologies or metonymies among the items. 'Metonymy' and 'homology' do not refer to a complete identity of meaning between "fire" and "bile", for example, but do indicate partial identities--sharings of some properties—which justify substituting one of these words for the other in many contexts.[11] Thus, 'mixing' is intended to stand for what any two of these items—"fire", "bile", "passion", "attachment"—have in common. "Fire", "bile", and "attachment" are of one metonymic set, yet also belong to separable, partly differing layers or spheres; they may at times be felt as conflicting—as partly unmatching with each other—perhaps especially because they *are* otherwise presumed to be metonymous. Das (1976) gives many examples of the anguish experienced in Hindu families when personal feelings conflict with other definitions of members' relatedness.

What the layered cube postulates is that anything in the Hindu world which partakes of "substance" (*dravya, dhātu, prakṛti*)—an atom, an organism, a group, a time, a place, a relationship, a feeling, etc.—requires characterisation along at least the three processual dimensions of variation that such a cube represents; and then that this construct may be viewed from many angles.

[11] The relations among items in these rows are of the kind that Wittgenstein (1958: 17) has called 'family resemblances'.

Antiequivalence relations

If the above alignments of variables are accepted as common and meaningful, then a highly systematic set of further analogues comes into view: the metonymic sets of variables summarised as 'mixing', 'unmarking' and 'unmatching' point respectively to notions that concern three of the fundamental relational properties of mathematics and symbolic logic—reflexivity, symmetry and transitivity (column *e*). They also point to partly corresponding operations of set theory—intersection, inclusion and union (column *f*).

Their names are less abstract, yet the Hindu variables (especially the strands) are used in ways that approximate the wide range (the analytic 'power') of the three fundamental relational properties. These three relational properties are defined by logicians (such as Langer 1967: 246–49) as potentialities, respectively, of the numbers one, two, and three. They function as axioms for all formal structural analyses. As such, they have been applied to studies of marriage (beginning with Weil in Lévi-Strauss 1949: 278–85), group dynamics (Lindzey and Borgatta 1954), and social relations generally (Doreian 1971: 15–20; Harary et al. 1965: 7–9; Kemeny et al. 1966: 385–406). They have been successfully used to design models of many cultural systems (Hage and Harary 1983).

The Hindu variables revise the standard Western version of the fundamental relational properties called 'equivalence relations'. Equivalence relations have tended to be assumed in recent Western popular thought and social science as essential to the organisation of human personality and society. Thus, persons and many other entities are postulated as being normally self-reflexive ('individuals', having identity with and being sufficient to themselves), and as symmetrical (equal) and transitive (consistent) in their relations with each other. 'Individuals' are indivisible, integrated, self-developing units, not normally subject to disjunction or reconstitution. Given such units, interpersonal influences, inequalities, and changes have to be brought in as external factors or pathologies. Other Western examples of equivalence thinking are a Euclidean plane and solid geometry, an Aristotelian syllogistic logic, and notions of legislation as fixed and uniformly applicable to all.

The Hindu postulations of mixing, unmarking and unmatching instead assert that persons are in various degrees nonreflexive (not necessarily identical with or otherwise related only to themselves), nonsymmetrical (not necessarily equal), and nontransitive (not necessarily consistent) in their relations. They emphasise that persons are composite and divisible (what one might better call 'dividuals') and that interpersonal relations in the world are generally irregular and fluid, if not entirely chaotic. Such Hindu postulations in effect constitute the universe as a set of 'antiequivalence relations'.

Antiequivalence relations are necessarily variable, since while they deny perfect reflexivity, symmetry and transitivity, they do not postulate the dichotomous opposites of these—absolute irreflexivity, asymmetry and intransitivity. Instead, they assert that various imperfect and inconstant intermediate states are to be expected, and thus that processes and inter- mediate states, rather than any fixed or polarised structures, are basic. Yet, since antiequivalence relations are understood by Hindus to inhere also in matter, they may appropriately be called 'substances' as well as 'processes'.

Matter that is subject to such variations may well be called 'fluid', and indeed Hindus generally refer to the world they must live in as "[that which is] moving" (*jagat*) and as a "flowing together" (*saṃsāra*). Such a world has its channels, basins and pools—even its temporary dams and dikes—but knows no absolute or enduring partitions (Zimmermann 1979). It and its inhabitants are generated by, and constituted of, more or less malleable substance that is continually moving in and out of them and also moving, like other features of the hydrosphere, under the variable influences of heat, gravity, currents and wind.[12] As a people who are etymologically "riverine", it is serendipitous that Hindus should have a set of sciences that respond so well to hydraulic metaphors.

The approximations of any abstract, analytic axioms—even antiequival- ence axioms—to Hindu constituents would seem to be limited by Hindu presuppositions of a wholly substantial and fluid world. Unlike any ideal and universalising logic, Hindu social formulations inhere always in substantial agencies which necessarily differ in particulars (Ramanujan 1989). Unlike points in a Euclidean geometric space, imperfectly bounded fluid entities can never be presumed to be fixed, discrete, or absolutely measurable. Modellings of Hindu phenomena thus seem to require algorithms more like those used in the sciences of oceanography or meteorology. Meanwhile, for starting to think about Hindu social realities, several simple and relatively precise techniques of relational modelling and measuring based on irreflexive and asymmetrical axioms are already available, as mentioned below.

Mixing, unmarking and unmatching

'Mixing' is the nonreflexive (intersective, externalising, expanding) process

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[12] In proposing that the strands may be understood as three kinds of motion—stasis (*sattva*); controlled movement (*rajas*); and both inertia and uncontrolled, riotous movement (*tamas*)—Veena Das (1985: 187) comes close to what is noted here. In a wholly moving world, however, a concept like 'stasis' is not strictly allowable. An entity such as an earth satellite may, however, gain apparent stability by applying equal force against its own potential drift, thus moving along with the earth's rotation. What is called *sāttvik* action is often such a counteractive movement that gives relative stasis.

implied in common Hindu assertions that the substantial universe with all its human and other contents is more or less "hot", being made up of "fire" (*agni*) or "bile" (*pitta*), moved by "passion" (*rajas*) and "attachment" (*kāma*), and affected by temporal "conjunctions" (*parvans*), spatial "crossings" (*tīrthas*), a logic of "combinations" (*yukti*), etc.

To say that 'mixing' (rather than unmixing) is a general property of the Hindu world is to assert the rarity of reflexivity, the improbability that any entity in that world can relate only to itself, even by a relationship of equality or identity. Mixing thus suggests the probability that any entity will be found nonself-sufficient, incompletely related to itself, not even equivalent to itself—being to a greater or lesser degree open and dependent for its qualities and processes upon exchanges with others.[13] Mixing's nonReflexivity and its *rājasik* nature are both suggested in the figures by use of the slashed 'R' symbol for the incidence of this variable.

The mixing variable is illustrated by David's (1974, 1977) ethnographies from Jaffna. Its formulation as 'maximal' and 'minimal transacting' is available in Marriott's (1976) unconventional matrix analysis of inter-caste and other relations in seven villages, a formulation which is replicated and critically examined in a single Tamil village by Levinson (1982). Mixing is particularly well analysed through the graph-theoretical procedures of Harary et al. (1965), which are further developed and applied in Hage and Harary (1983).

'Unmarking' (out-ranking, pervading others, neutralising self) is the nonsymmetrical process implied by Hindu postulations of "water" (*āpaḥ*), "phlegm" (*kapha*), and "goodness" (*sattva*) as universal constituents. All of these have a property of initial altitude and a directional tendency to descend, like rain and rivers, from "origin" to "end", "wet" to "dry", "pure" to "impure", "subtle" to "gross", "essence" to "residue", etc. Gravitational orientations and movements of substance are expected everywhere—in ancestry, birth, alimentation, top-down bathing, ranked feeding, deference, tutelage, obedience to commands, speaking and listening, and worship. A *sāttvik* person is one who faces into the prevailing gravitational direction of flow and successfully swims upstream.

Transfers of any entity's constituent properties are also understood to occur by transactions, such as those from gods to humans through natal "headwriting" (*talai eruttu*) (S.B. Daniel 1983: 28–40), and by the carefully matched personal "polishings" or "markings" called *saṃskāras*. The subtle karmic "traces" (*vāsanās*) left by personal action are markings that continue to affect future life (Potter 1980).

As the only reliable, directional force, unmarking-marking is what seems to Hindus to give continuity and relative stability to social relations. Its

[13] An example in this volume is Wadley and Derr's finding that no survivor of the Karimpur fire fails to share his sins.

reality is affirmed by Hindu attention to relative "advantage" (*artha*), to priority in time sequence, and to evaluative preferences. In the figures, the nonSymmetrical (and anti-*sāttvik*) direction of marking is suggested by use of a slashed 'S' as its abbreviation. Measures of relative marking as evaluations and as transactions among castes and persons are readily available (Freed 1970; Garbett 1980; Hiebert 1971: 54–67; Mahar 1959; Marriott 1968, 1976).

Calling this process 'marking' is here meant to evoke the image of a substance (such as a sediment or pigment) moving from a marker to a marked object, one-way, as some property (tangible or intangible) is so often felt to do in Hindu interpersonal relations. Animal behaviourists use the term 'marking' in this way for the scents that animals use to claim territories. 'Marking' is also meant to evoke uses of this word for partly similar phenomena by linguists.[14] Hindu marking shares with linguistic marking the notion that unmarked (neutral) or less marked entities are more inclusive (in substantial terms, more 'pervasive') and thus taxonomically 'higher' than are the more marked and specialised entities included under (that is, pervaded by) them. The term 'marking' was first used for Hindu phenomena by Wadley (1975: 56) in analysing a local 'hierarchy' of deities, arranged by the scope of their powers. Substantial marking in the Hindu world particularly resembles morphological marking in linguistics (as in the comparison of 'man' and 'woman'), but does not so closely resemble nonmorphological, semantic marking, which may occur without the addition of sound features (as in different meanings of the word 'man'). The substantialistic Hindu notion that entities become 'unmarked' or neutralised by transferring markings to others distinguishes Hindu marking from both linguistic and animal marking.

'Unmatching' (which could alternatively be called 'messing' or 'nixing') is the nontransitive (reversing, negating, separating) constituent process. A slashed 'T', referring to nonTransitivity, is used as its abbreviated sign in the two figures. It summarises the fluctuating movement, sometimes the disorder which is anticipated in Hindu postulations that "air" or "wind" (*vāyu, vāta*) is an element and a "fault" or "humour" (*doṣa*) of all life (as are also "bile" and "phlegm"), and that "darkness" (*tamas*) and "incoherence" (*adharma*) are expectable constituents of the universe generally. Inaction when action is needed, chaotic action when controlled action is needed (Das 1985: 204, fn. 5); separating when unity is needed, joining when separation is needed—are all examples of unmatching. Hindu notions of "inappropriateness" (*pratiloma, asātmya*, etc.), "unwisdom" (*avidyā*) and "uncertainty" (*adṛṣṭa*) are other examples of the richly developed Hindu notions of unmatching—these approximating statistical concepts of

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[14] Others (such as Allen 1985: 22–25) note that Dumont's uses of the term 'hierarchy' are often synonymous with linguistic 'marking'.

'negative correlation' and 'error', respectively. That orderings of entities not much more inconsistent than those of Hindu society may be realised by chickens (who lack any axiom of transitivity) has been shown by Chase (1984), giving credence to the less extreme characterisation of Hindu society as nontransitive in its axioms.

Unmatchings occur continually through the permutations of astral "time" (*kāla*), through spatial dislocations, and through "impure" (*aśuddha, āśauca*) and "inauspicious" (*aśubha*) events (Madan 1987: 50–58). Unmatching is a secular trend of the universe as it devolves through increasingly corrupt "ages" (*yugas*) and falls into states of "emergency" (*āpad*). 'Ritual'—"coherent action" (*dharmakārya*)—the principal means of rematching (which may itself involve negations, reversals and separations), is the ubiquitous but not wholly effective Hindu antidote to all sorts of disorder.

Earth, ether and consciousness

Hindu thought generally, following the ancient ideas of *sāmkhya*, assumes at least two other elements, "ether" (*ākāśa*) and "earth" (*prthvi*) as variable constituents of the material universe. Ether and earth are respectively understood in *sāmkhya* and elsewhere as upper and lower points of a devolving. increasingly marked, self-depleting series of elements running from a relatively "subtle" (*sūksma*) or ethereal and inclusive source to a sink of "gross" (*sthūla*) materiality, the included remainder of the other elements (Larson 1987: 51–52). Accordingly, they are here tentatively treated as one variable, titled in Table 2 as 'Grossening and subtilising'.

Following no *sāmkhya* text, but using the *sāmkhya*-influenced semantic space defined above, one could plot the idea of a subtle-gross continuum as the diameter shown in the cube of "strands" (*gunas*) in Figure 1. This diameter runs from the far, upper corner where things are particulate—small (unmixed) and loose (unmatched) but pervasive (unmarked)—to the opposite near, lower corner, where things are large (mixed), unified (matched), and pervaded (marked). Table 2, column *c*, defines the same, grossening diameter in *guna* terms.

In the texts of Hindu biology, the constituents "sky" or "ether" (*ākāśa*) and "earth" (*prthvī, ksiti*) are in the background and are discussed much less fully than are "air", "fire", and "water". They seem to function mostly as temporary containers for other elements, actions and processes. Ether supplies cavities or empty spaces—for movements outside, through, and within substances—while earth constitutes the limits of loci—defined places, tangible shapes, partial boundaries, routes with termini (Manu 12.120; Caraka 1985 *Śā*. 7.16). Given the bulk and motility of the other Hindu elements, such localising containers seem indispensible, and Hindu discourse accordingly postulates many sorts of "channels" (*srotases*),

"vessels" (pātras), places of "rest" (āśramas), "wombs" (yonis), "bodies" (śarīras), "genera" (jātis), "fields" (kṣetras), and "spheres" (lokas). "Earth" and "ether" thus together provide temporary loci for birth, aggregation, death, rebirth, and all else that passes among people. In the figures in this essay, such loci are represented by cubes, cubes within cubes, and arrows.

Affected by what flows through them, much as any karmic agent is understood to be affected by its actions, these containers of earth and ether appear to be partly dependent on variations in the three more motile constituents. Earth can evidently be reshaped by sun, wind and irrigation, while ether is expandable and contractable. The temporary 'incapacities' of human bodies during death and birth are the subject of Mines' (1989) study, which confirms that repairs to these containers are affected by the other variables. Table 2 therefore excludes earth and ether from the list of independent variables.

Generally also, earth and ether appear to be in mutually complementary distribution—where one is strong the other is weak (Caraka 1983 Sū. 26.40)—supporting the interpretation that these two elements are opposed poles of a single variable. They are so listed in Table 2. As containers of terminal but contrary kinds, their functions seem to be to transform—to recombine, reproduce and reissue what they receive, earth in relatively gross, ether in relatively subtle forms.

The Hindu sciences also generally postulate one nonelement and antiaim—the omnipresent, reflexive, nonmaterial, constant process(es) commonly glossed as "self" or "soul" (brāhman, ātman), or "consciousness" (puruṣa). Its function of total, passive consciousness is normally available to humans only on release from the stranded, substantial and fluctuating world. Only through a released consciousness, conceivable as the empty and static complement of the universal set (of the foregoing particulars), does a sense of wholeness ordinarily arise. By conceptually aggregating all points of view (those of all differently situated, embodied souls) on a fluid world, however, this Hindu notion of a ubiquitous consciousness seems to point to the multiperspectival and multidimensional kind of thought about relationships and processes which a Hindu ethnosociology, too, may well attempt. Such consciousness is, of course, the subject of a vast speculative literature, but has only begun to be a focus of ethnography.[15]

The five common processes described above, listed in Table 1 and shown as constituents in Figure 1, are summarised as postulates in column (g) of Table 2.

Other spheres, other cubes: homologies and deductions

Up to this point, this essay has been concerned with defining the general semantic property-space in which Hindus conceptually and perceptually

[15] Gold's (1988) ethnography of pilgrimages to and from a Rajasthan village shows the large, yet intermittent and peripheral relevance of such consciousness in social life.

dwell. If that space has been correctly defined in the postulates and diagrams above, other realities of the civilisation—processes, actions, entities, institutions, issues, etc.—should readily find places to function meaningfully within that same space. This seems to be the case, as illustrated by the other papers in this volume.[16]

In each sphere, such as those of religion, architecture, kinship, village organisation, disaster, and state politics investigated in the other studies of this volume, one finds definitions of particular property-spaces and contents that are metonymous and partly homologous with the general properties of the constituent cube postulated above. Thus, the festivals and castes of a Tamil town observed by Moreno are characterised and operate in terms of the system of humours which itself helps to define the general cube. Similarly, the household activities, deities, and structures described by Moore are aligned with the physical elements which also define the cube. Likewise, the rates of survivors' healing after death are calculated by Mines for *varṇa*s and *āśrama*s from the defining system of qualitative "strands" and from the transactions that the triad of strands imply. Political powers (Dirks 1989), karmic speculations (Wadley and Derr 1989), and inter-caste relational patterns (Raheja 1989) are all found to proceed in various terms which correspond well with the three classical aims—another scheme contributing to the general cube. Each of the primary analyses thus implies or explicitly refers to other schemes labelling the same general, multi-dimensional space. Some homologies among the schemes of the several social spheres are listed in Table 3 and diagrammed in Figure 2. More of them are shown in the several figures in Moore's paper.

Anything that is described by a combination of three or more of the processual variables can be located in any sphere or cube. The four *āśrama*s, if one follows Mines' characterisation of them by their strands and interactions (as in Table 3), would occupy four sides of the cube, two at the more matched front, two further back. The four *varṇa*s, if characterised by the three strands as Davis (1983: 51) found them to be in a Bengal village, occupy the two upper front and two lower rear corners of that cubic "sphere". The year can be shown to rotate counter-clockwise through the same plane of the cube which is described by the *varṇa*s, since it follows the six seasons, whose "savours" (*rasa*s) are similarly located by the humours and elements (as in Caraka 1983 *Sū*. 6 and elsewhere).[17] If characterised by their predominant constituents and effects (tabulated by

[16] As an alternative to descriptive, field testing, such as the present papers provide, assessment of the processual variables' adequacy may be made through the experimental game 'SAṂSĀRA' (Marriott 1987). Reborn into a game world in which the above five variables are postulated, uninstructed players regularly generate institutions that resemble *jāti*s, *varṇa*s, *āśrama*s, karmic philosophies, etc.

[17] Zimmermann (1980, 1987: 146–48) offers two-dimensional, triangular and hexagonal analyses of this plane that might more easily be accommodated in a cube of three humoral dimensions.

Table 3

Some Social Examples of Three Processual Variables

Processual Variables	Classic Categories (Mines)		Transactional Strategies (Marriott, Raheja)	Prestational Values (Raheja)	Political Issues (Dirks)
	vārṇas (Davis)	āśramas			
MIXING	Kṣatriya, Vaiśya/	householder/	maximal	mutuality	territory wider
...unmixing	Brahman, Śudra	renouncer	...minimal		...territory narrow
UNMARKING	Brahman, Kṣatriya/	forest-dweller/	optimal	hierarchy	command, honour
...marking	Vaiśya, Śudra	student	...pessimal		...[obey, defer]
UNMATCHING	Vaiśya, Śudra/	renouncer/	peripheral		[violence]
...matching	Brahman, Kṣatriya	householder	...central	centrality	...constraint

Processual Variables	Impurity (Mines, Moore)	karma Operation (Wadley and Derr)	Effects of Action, Social and Personal (various authors)	Worship Offerings (Moreno)	Cosmic Orientations (Moore)
MIXING	mixed	large network	external power	hot (sugar)	east/
...unmixing	moderate	...small unit	...internal power	...cold (water)	west
UNMARKING	less	high agent	superiority	wet (milk)	up, source/
...marking	...more	...low patient	...inferiority	...dry (shoes)	down, sink
UNMATCHING	more	unmerited	sin, inauspiciousness	kill (burn, impale)/	north/
...matching	...less	...merited	...merit, auspiciousness	marry	south

PURITY AND IMPURITY

POWERS OF KINGS
(Dirks)

CASTES AND HUMORS
(Moreno)
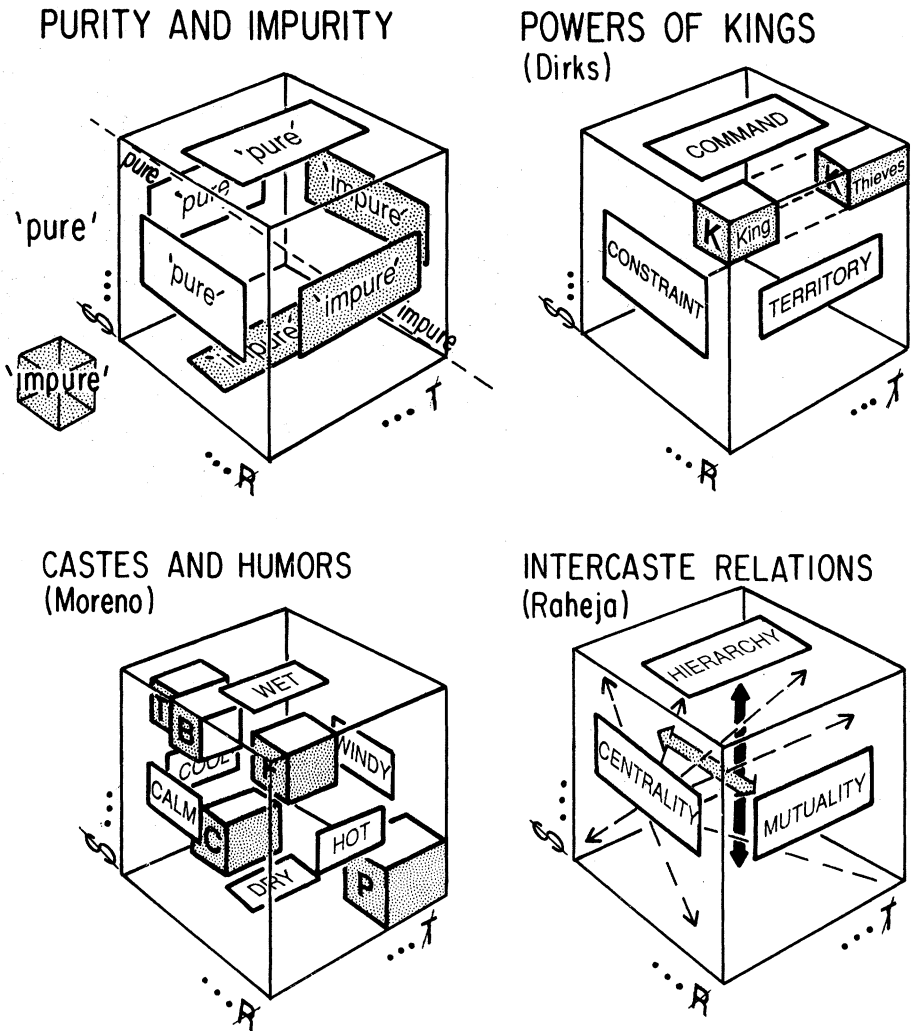
INTERCASTE RELATIONS
(Raheja)

Fig.2 Uses of the Constituent Cube

Pugh 1983b, 1984: 90), most of the nine celestial bodies can also be located in a cube of the heavenly sphere. Returning to the human sphere of local social organisation, the Right- and Left-hand divisions as well as five occupational castes, all characterised by their humoral reputations (Moreno and Marriott 1989), can be located in a cube representing the Tamil town of Palani (Figure 2, lower left).[18]

How are entities themselves to be defined as social units? The three dimensions of the Hindu property-space are again at issue, as here illustrated in Wadley and Derr's (1989) record of debates on the causes of the Karimpur fire. Is agency to be assigned to smaller, single-person units, as some declare, and/or to larger family, lineage, or caste networks (where the incidence of the mixing variable is greater)? Is agency to be ascribed only to the sufferers who are present and living, or is it to be ascribed also or instead to those above them—to family heads, leaders, ancestors, or to still higher, more pervasive, divine markers? Does suffering adhere to sinners only (however their units are defined), or does it fragment and diffuse to others without regard to previous connections and thus without regard to a matching of sin with suffering?[19] Whatever their hypotheses, villagers seem determined to argue over the size, antecedents and coherence of any entities.

The media of social transactions (foods, bodies, words, blows, etc.) are as subject as entities to characterisation by the processual variables. "Hot" jaggery and "cooling" water, wet milk and dry shoes, impalement and wedding, respectively, represent the three variables among the humoral transactions detailed by Moreno and Marriott in this volume. In Mines' analysis, the earth-and-ether, gross-and-subtle, containing elements of the person are the media most distinctively at issue in the separative, container-breaking "incapacities" that result from birth and death (āśauca, sūtaka); the other, more motile elements—air, fire and water (which are contents of those containers)—are the media involved in the three dimensions of general "impurity" (āśuddha), whose degrees ('more' and 'less' in Table 3) affect the highly differentiated distribution and duration of these incapacities.

The qualities of actions listed in Table 3 are not graphed here in detail comparable with the data of any of the papers in this volume, yet means of doing so are suggested by Raheja's sociograms of 'mutuality' (mixing), 'hierarchy' (marking), and 'centrality' (matching), adapted here to a cube (in Figure 2, lower right). Matrices and computer programmes for multi-

[18] The castes located in Figure 2, lower left cube are:
    L E F T   B = Brahman   R I G H T
    T = Traders (Naṭṭukkottai Ceṭṭiyar)   F = Farmers (Kavuṇṭar)
    C = Cobblers (Cakkiliyan)   P = Pallan Labourers
[19] Ramanujan (1980) correlates the difference between matched (karmic) and unmatched agency with the difference between classical and folk codes, both of which may be available within the repertoire of any sophisticated speaker.

dimensional scaling and graphing may be used to manage the much fuller depictions that will be required for rigorous and detailed studies of such actions; for these, previous efforts (Hage and Harary 1983; Levinson 1982; Marriott 1968, 1976; Mitchell 1980) are only beginnings.

The differentiated Hindu property-space presents problems and opportunities for action to be not merely typed, but also either mixed or unmixed with (intensifying or reducing), marked or unmarked by (influenced or influencing), and matched or unmatched to (conforming with or opposing) the properties of its locus. When Palani Farmers heat themselves by cooling an overheated goddess (Moreno and Marriott 1989), when Kallar kings constrain their thieving cousins (Dirks 1989), when Gujar *jajmāns* distribute potential disaster (Raheja 1989), when survivors subtly re-embody the spirit of a deceased relative (Mines 1989), they all counteract features that the varying world presents. Kerala householders (in Moore 1989) locate some of their activities (cooking, entertaining, conserving, menstruating) at similarly propertied places within the cube they inhabit, but they also exploit the house's contrasting properties by moving hot sexual activities to cool places, and disorderly death to orderly places; they even counteract the house's properties by putting light into the darkest region and by recycling life-sustenance through what would otherwise be the most polluted and inauspicious corner.

The processual variables are found in other spheres of action, such as time, that may at first seem remote from the human world of variable substance. In astrology, for example, (*i*) combinatory relations (mixing), (*ii*) ascendant relations (marking), and (*iii*) permutative (unmatching) spatio-temporal relations are among the most prominent variables of its interpretive logic (Kemper 1977, 1980; Pugh 1983a, 1983b). The shifting relations of seasonal time are as much "substance" (*dravya*) to Hindu biological thought (Caraka 1983 *Sū.* 6 and 11.42; Zimmermann 1980) as are the other physical elements of which human and celestial bodies are constituted (Pugh 1984).

So it is also with human events. If one rephrases past Pudukkottai politics (Dirks 1987, 1989) in Hindu spatio-temporal terms (rather than splitting 'history' as dynamics apart from 'cultural' statics, Western-style), one deals with three analogous variable processes of time-space: (*i*) coincidence (intensities of mixing in the territorial concentration, distribution, and confrontation of clans); (*ii*) precedence (marking, emphasised in the sequential narratives of genealogy, settlement, and temple-founding); and (*iii*) cycling (unmatching or reversal—here the transformation of violent Kallar bandits into *dhārmik* kings) (Dirks 1982; Shulman 1980). These three temporal vectors are diagrammed spatially in Figure 2 (upper right) as the powers of larger "territory", higher "honour" or "command", and greater "constraint", respectively; their higher scores on all three of these scales thrust some Kallars into the royal corner of the cube.

Temporal processes are similarly categorised in the sphere of karmic calculation, where in Wadley and Derr's account of a recent disaster, villagers debate the relative causal weights of (*i*) simultaneous and immediate intersections of circumstances (mixtures), (*ii*) prior and pre-determined qualities (karmic markings), and (*iii*) unpredictable, unconnected (unmatched) factors. All three sorts of time are involved, and villagers' several particular explanatory resolutions of the debate are products of their various combinations. Rhodes (1984) has reported just such a triad of kinds of time in Sinhalese medical treatment.

Once the data (on entities, actions, or processes) within any sphere are mapped in a three-dimensional property-space, both Hindus and social scientists thinking with Hindu concepts may exploit the adjacent layers' meanings. By metonymic deduction, one may hypothesise, for example, that a group acknowledged to be of the Kṣatriya *varṇa* (whose strands are imagined in Bengal as much passion and goodness, but little darkness [Davis 1983: 51]) will have a humoral profile of much bile and phlegm, but little wind; will be much concerned with their attachments, advantages and coherence; and will generally evidence processes of mixing, unmarking and matching in their lives. Following the layer-to-layer analogical reasoning so richly developed in all the Hindu sciences, one may go much further in hypothesising their social organisation, diet and temperament, as well as compatible and incompatible times, spaces, directions, flavours, colours, textures, powers, styles of action, etc. The extent to which they disconfirm such hypotheses will indicate problems for further, meaningful investigation. The authors of most of the following papers have used such reasoning many times in constructing their interpretations. The empirical proofs or disproofs of their hypotheses lead them, and should lead others, to more accurate articulations of the dynamics and dialectics of Hindu life.

Layering seems intrinsic to the overlapping, homologous systems explored in these papers, as three-dimensional conceptions are replicated in sphere after sphere, providing similar orientations in each. Layers are explicit in widespread Hindu theories of homology between the inner and outer minds (Raheja 1976); they are supported by yogic doctrine, which posits five outer and inner bodily "sheaths"—a mixing-to-unmixing sort of variation—and by the devolutionary orders of *sāṃkhya*, which generally devolve "gross", outer substance from "subtle", inner substance (Larson 1987: 49–65). In astrological interpretation a different, possibly contrary ordering of layers prevails in which the divine, celestial sphere marks all the layers contained within it (community, family, body, psyche). But the four inner layers interpenetrate and have no fixed order among them (Pugh 1984). Layers of expansion (mixing) and of danger (unmatching) both appear intermingled as physical features in planning house-to-land ratios in Kerala (Moore 1989). Castes living away from the centre are generally more marked and more unmatched both in themselves and in

their relations with other castes (Hiebert 1971: 59–62; Pfaffenberger 1982; Raheja 1988a, 1988b, 1989). Such "others" residing in peripheral layers are appropriate recipients of inauspiciousness (a kind of unmatching) in the Tamil ritual complexes detailed elsewhere by Shulman (1985) and by Raheja (1988a, 1988b, 1989) and also by Moreno and Marriott (1989). Thus it appears that the orderings and meanings of layers differ, following all of the three regnant variables, much as any ordering of aspects or entities depends on the locus of the viewer. Layering is nevertheless a recurrent consequence of dealing with a world whose every sphere replicates a similar underlying relational structure.

Moore (1989) discovers the special importance of the innermost layer— the middle of a cube—where the atrium of Kerala houses is conceived to be. This is the point where conventional Western graphing would put its zeros, but where Hindu calculation finds all of its substantial variables present and in a perfect state of matching, or balance. (They would be numbered 5, 5, 5 on the scales of 1 to 9 that are favoured by the Kerala building manuals.) Being a place of matching, and being protected from the dangerously unmatched outer layers, it is a good place for carefully matched rituals. An equipoise of physical elements, humours and strands is similarly Tamil villagers' idea of the divine original state (E.V. Daniel 1984: 3–5). The person whose humours are so balanced is free of disease, according to *āyurveda* (Caraka *Sū.* 7. 39–40). The ideally all-competent Sikh yeoman would command his world from such a balanced middle locus, needing none of the Hindu *varṇas'* division of labour (Uberoi 1967: 100). The many Western theorists who, following Durkheim (1915: 47), suppose that sacred things must be set apart may be surprised to come upon this most perfect spot in the middle of life. The "sacred" (*tiru*) "middle" of the Kerala house is, like the "heart-mind" (*manas*), a divinely illuminated special locus where humans can cultivate the fifth and constant process—pure consciousness.

Diametric concepts: 'purity', 'dominance' and 'hierarchy'

Three-dimensional analysis can provide perspectives on two pairs of Hindu concepts that have been much debated among researchers on caste in India—'pure-impure' and 'great-small' (the last more often called 'dominance' by social scientists of Western type). These are rarely defined concepts, essentially contested among Hindus, with which social scientists have nevertheless often attempted to analyse Indian materiaĺs, usually with ambiguous results. 'Hierarchy' is a disagreed dimension that partakes of the difficulties of both 'purity' and 'dominance'.

Like the "subtle-gross" continuum plotted above and also like the "violent-nonviolent" distinction which is not much discussed in this volume, "purity" (*śuddha* with its synonyms) and "dominance" (*adhikāra*, etc.) are

potentially three-dimensional ideas that can generally be interpreted as lines running diametrically from corner to corner of the constituent cube. While the cube can be correctly labelled with these words, and while it could even be redefined by these four main diameters—by its corner-to-corner axes, rather than its face-to-face axes—to do so would be to open theory to the claims of rival ideologies and contentions. The three rectangular dimensions actually used are preferable because of their parsimony and their neutrality. They are less contested as presuppositions.

The ambiguities of the diametric concepts are illustrated by some of the many meanings of "purity" diagrammed in the first cube of Figure 2. "Purity" as used by Hindus may refer to being relatively unmixed (e.g., "cool", non-*rājasik*), unmarked (e.g., "virtuous", *sāttvik*), and matched (e.g., "coherent", *dhārmik*); or to any two of these properties, but not the third; or to any one of these properties, but not the other two; or to none of these properties (Carman 1985). Only the last, socially peripheral Hindu usage approximates the usual Western meanings of 'spirit without flesh', or 'rule without deviation'. Analytic clarity requires specifying which of these eight meanings is intended. In this volume, the papers of Mines and Moore especially achieve and illustrate such clarity.

The alien term 'hierarchy' seems to have suffered because of its naively one-dimensional participation in the three-dimensional Hindu semantic space. The word is given at least three meanings in the descriptive papers of this volume: (*i*) the 'purity' diameter of the first cube in Figure 2 (cited by Dirks, criticising this Brahman-oriented usage by Dumont); in the next cube, (*ii*) the 'dominance' or 'power' diameter (from 'King' to the hidden back, bottom corner—the meaning that best suits Pudukkottai kingship as described by Dirks; (*iii*) any chord moving through the vertical dimension of the constituent cube. The last is Raheja's usage, depicted by the dark arrow in the cube of inter-caste relations in Figure 2, and is formally equivalent to what is here called 'marking'.

'Hierarchy' is strongly identified with 'purity' in Dumont's usage. He translates Hindu 'purity' into a Western ideal—the separation of spirit from 'biological' or 'organic life'—even though, paradoxically, he notes that Hindu thought generally ignores or denies such a typically Western 'rift between man and nature' (Dumont 1970: 59, 61). His analytical application of this alien ideal locates the apogee of 'purity' at what he sees as the most 'encompassing' (*englobant*) end of a partly asymmetrical series of operations that he calls 'hierarchy'.

'Encompassing' is not a canonical operation of set theory, but is Dumont's condensation of a complex model of two mutually excluding 'hierarchies' called 'inclusion-exclusion' by its inventor, Raymond Apthorpe (1984). Apthorpe devised 'inclusion-exclusion' in 1956 to describe the unresolved contention between the Tutsi and Hutu tribes for inclusive dominance over

the state of Ruanda in Africa, a territory from which each tribe would exclude the other. As used by Dumont, 'to encompass' shows the same irresolution, for it means 'to include', as when an orientation to purity-impurity is said to encompass the 'whole' of society; and also means 'to surround, but not include', as when the purity orientation is said to be ignored by Kṣatriyas and other 'power'-oriented groups, who are alleged to occupy a disordered 'middle' region—separated but surrounded. 'Encompassment' is thus an oxymoron: it asserts that Hindu society is both split and not split, both ranked and not ranked. Dumont (1979: 809) defends such a characterisation of Hindu society as necessary, but admits that such self-contradictory usages of 'encompassment', or 'hierarchy', create a 'logical scandal'.

The present model avoids such scandal. It postulates 'unmarking' as a dimension of its entire property-space, and thus returns to noncontradictory relations more like those that set theory calls 'inclusion' and linguistics calls 'taxonomic hierarchy'. It adds two other variable dimensions (which approximate the set-theory terms 'intersection' and 'union') to its pre-supposed property-space. It conceives the top of this space not as narrowing to a point on a single line, but as a broad and deep rectangular region capacious enough to accommodate Kṣatriyas, gods, bandits, and others as well as Brahmans. Brahman and Kṣatriya *varṇa*s are both controlling elites, each of them relatively unmarked (pervasive or inclusive in their scope) and strongly matching (nondisjunctive, capable of union); they differ mostly along the one dimension of mixing (intersection), popularly known as "cold" and "hot". The "purity" and "dominance" diameters which they respectively head intersect with each other: they are alternative lines across the same diagonal (top front to bottom rear) plane of the cube. As a cube or a plane may be viewed in more than one way, the orderings of the marked or backgrounded entities will be seen to vary, depending on whether the angle of vision is that of king, thief, priest, village *jajmān*, or some other. Diversity of ranking is an intrinsic potentiality of such a model.

After reading Raheja's evidence (1989; also 1988a and 1988b) for the actuality of such diverse and shifting three-dimensional views, and Beck's (1972: 154–81) and Marriott's (1976) similar reports of diverse rankings from elsewhere, one might hope that the supposition of a single-dimensional space will henceforth be abandoned. After seeing Moore's evidence (1989, Figures 4 and 6) for a Hindu consciousness of many diagonal "slopes", one might hope that the utility of a multidimensional model will be clear. One might hope also that the oxymoronic term 'encompassment' will be dropped and the now heavily overburdened word 'hierarchy' will be either restored to its unambiguous meaning of an order of inclusions, or else given a rest.

Other possible Indian social sciences

The foregoing constructs by no means form a complete ethnosociology, nor do they exhaust the materials from which Indian social sciences may be developed. They leave untouched the Hindu systems of "senses", "savours", "sentiments" and "feelings"—materials for concentric indigenous psychologies. The model outlined above is undoubtedly biassed in the direction of its sources, which are mostly Hindu, more north Indian than southern, more learned than popular, more of *saṃkhya-yoga* than of any other *darśana*, more *āyurvedic* than astrological, more orthodox than devotional, more high caste than low, and more male than female.

The different general theoretical systems that could develop from other, one- or two-dimensional humoral schemes have yet to be fully imagined. Suggestive examples are the Tamil humoral notions described by McGilvray (1982b) and E.V. Daniel (1984) (noted by Moreno and Marriott in this volume), and the highly developed fire- and water-based, but windless Greco-Muslim humoral scheme reflected in the notions of Muslim farmers of Panjab and Sindh (Kurin 1981).

Ether and earth have been interpreted above as secondary if necessary elements, providing containers and recycling for the world's otherwise highly motile substances. But earth as regenerative mother and ether as spirit or feeling might become central understandings of these categories if a general theoretical system were built from Tamil women's views of the world (Egnor 1978, 1984). Sky and earth would also play far larger and very different roles in a science developed from the theories of Muslim farmers in Bangladesh (Thorp 1982), for whom the analogous god and man are the principal duality of the universe, and for whom other elements (fire, water) are mere media or qualifiers.

Differences of aspect or point of view on the cubic structure have been noted repeatedly above. But the cube has been pictured so far from just one angle. The differences of aspect stressed in the papers by Moreno and Marriott, Raheja, and Dirks result from shifts only among the elites who occupy the edge joining its top and forward (unmarking and matching) faces. Views from along this edge may well be the most influential and prevalent ones: the replication of a "purity" diameter by Tamil Untouchable castes who are excluded from direct participation in elite celebrations has been richly demonstrated by Moffatt (1979). But suppose one takes a sampling of other views: Jaini's (1979: 138–87) account of Digambar Jains' single-minded avoidance of mixing and of marking (which they consider a particularly violent kind of mixing); or Trawick's (1988b) reports on systematic verbal inversions of marking relationships, sung out loud by Untouchable Tamil women; or Parry's (1985) account of the ritual joinings of all opposites by *tāntrik* Aghori Sadhus; or Khare's (1984) reports of how Lucknow Untouchables perceive humans as bodiless souls. These views,

from what cubists would regard as the lower left side, the backside, all sides, and the inside-outside of the cube, can alternatively be regarded as implying radically different topologies which should yield radically different general theoretical systems.

Conclusions

The constructs developed here and in the other essays of this collection may be regarded as belated carryings forward of what has long been potential, but has remained implicit or neglected in the Indian sciences. On the other hand, the novel verbal and mathematical translations and geometric mappings used here can be taken as proof of alienation from truly Indian ways of constructing sciences. Both views seem correct.

There is no doubt that the present interpretations *are* constructs, and that they will look strange to scientists of both Western and Hindu traditions. Still, they were developed through profound and active intellectual participation in both Western and Indian life and ideas by all the authors of the following papers and many others whose works are cited. Western and Indian sciences cannot easily be made one, yet they are enough alike that those who practise both can heighten their awareness of common underlying issues, such as equivalence and antiequivalence relations, or context-free and context-sensitive variations (Ramanujan 1989), on which very different perspectives exist. Deep comparisons are possible.

The plethora of Sanskrit words here and in the following papers may give rise to a suspicion that the constructs offered here are anachronisms irrelevant to the present Indian or any other region of the modern world. The possibility of irrelevance or anachronism appears remote, however, since liquid, antiequivalent Hindu presuppositions, while old, are nonetheless resonant with a great body of living Indian literature and with the findings of much recent ethnography. These presuppositions are in many ways also compatible with the findings of current linguistics, of molecular and atomic physics, of ecological biology, and of social systems theory (Buckley 1967; Capra 1975; Marriott 1977; Prigogine and Stengers 1984). They are more compatible than are the presuppositions of Western theology, law, or common sense which generally underlie the concepts of conventional Western social science. In other words, the constructs explored here may be as much for the present and future as for past Hindu and wider worlds.

Breaking with some aspects of the established Western ethnosocial sciences and cultivating other-regional rivals may also raise fears of parochialism and relativism. But the processual relativism that the Hindu ethnosocial sciences would indulge is potentially the least parochial, the most ecumenical of urges. Hindu ontology and epistemology, whether labelled as fire, water, and air, or as more learned notions of strands and

humours, can be said to deal more directly with some ideas of greater universality—the fundamental relational axioms of mathematics, or the fact of universal flux, for example—than conventional Western social science does with its parochial, equivalence-based ideas of discrete, static and uniform entities. One cannot in fact avoid parochialism in the present state of the social sciences. If Indian sciences are developed, however, one may at least be able to choose whether to practise with alien and often inappropriate concepts or with indigenous, appropriate ones.

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